

Serial No.: 09/858,098
Group Art Unit: 2633
Examiner: Leslie C. Pascal

REMARKS

Claims 1 through 15 remain in this application. Claims 16 and 17 have been added.

Objections to the Drawings

The Office Action objected to Figures 2b and 3 and required a designation of "Prior Art." Corrected replacement sheet is attached hereto that has been revised to include the designation of "Prior Art" to Figures 2b and 3.

Claim Rejections under 35 U.S.C. 103(a)

The Office Action rejected claims 1 through 15 under 35 U.S.C. 103(a) as being unpatentable over WO 99/23773 to Elahmadi et al (Elahmadi 1 reference) in view of U.S. Patent No. 6735392 to Elahmadi et al. (Elahmadi 2 reference). However, neither the Elahmadi 1 reference or the Elahmadi 2 reference either alone or in combination teach or suggest the requirements of the claims.

Independent Claim 1 and dependent claims 2 through 8

Independent Claim 1 requires a pair of network elements; two or more working fibers coupled between said pair of network elements for carrying communications traffic between said pair of network elements, each working fiber carrying said communications traffic over a plurality of channels associated with one or more rings; a shared protection fiber coupled between said network elements, said shared protection fiber providing a plurality of channels in excess of the number of channels of one or more of the working fibers; wherein said network elements include circuitry for concurrently switching communication traffic on rings associated with different working fibers to respective channels of said shared protection fiber. As shown in Figure 4 and explained at paragraphs 26 and 27 of the application, each pair of adjacent optical network elements 23 are connected by a pair of working lines 16 and a pair of protect lines 18, except between network elements 12a and 12b. Between network elements 12a and 12b, there

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are two pairs of working fibers 16ab1 and 16ab2. However, there is only one pair of protection fibers 18ab. The one pair of protection fibers 18ab is shared between the two rings. Network elements 12a and 12b may switch *any channel or group of channels* from any of the associated working spans (working spans 16fa and 16ja for network element 12a and working spans 16bc and 16bg for network element 12b) or from any of the associated protection spans (protection spans 18fa and 18ja for network element 12a and protection spans 18bc and 18bg for network element 12b) to any available channel on the shared protection fibers 18ab.

In contrast, the Elahmadi 1 reference and the Elahmadi 2 fail to disclose or suggest the requirements of claim 1, *inter alia*, of a shared protection fiber coupled between said network elements, said shared protection fiber providing a plurality of channels in excess of the number of channels of one or more of the working fibers; wherein said network elements include circuitry for concurrently switching communication traffic on rings associated with different working fibers to respective channels of said shared protection fiber. The Elahmadi 1 reference does not describe the working fibers, protection fibers or shared protection fibers having a plurality of channels. As stated in the Office Action on page 2, third paragraph, the Elahmadi 1 reference "does not teach specifics about how the channels are transmitted on each ring. . .".

The Elahmadi 2 reference teaches away from the present invention as it explicitly states at column 6, lines 28 and 29 that, "Rings 102 and 104 cannot use their protect channels at the same time." The Elahmadi reference only describes switching from a single working fiber to the protect channel at one time and teaches away from the present invention for concurrently switching communication traffic on rings associated with different working fibers to respective channels of said shared protection fiber. The present invention has a distinct advantage of being able to concurrently switch channels from both rings onto the shared protection fiber.

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Independent Claim 9 and dependent claims 10 through 15

Independent Claim 9 requires interface circuitry for coupling to two or more incoming working fibers and two or more respective incoming protection fibers, each of said working fibers operable to carry communications traffic over a plurality of channels associated with one or more rings; and switching circuitry for concurrently coupling channels from different incoming protection fibers to a shared protection fiber, said shared protection fiber providing a plurality of channels in excess of the number of channels of one or more of the working fibers.

The Elahmadi 1 reference and the Elahmadi 2 fail to disclose or suggest the requirement, *inter alia*, of claim 9 of switching circuitry for concurrently coupling channels from different incoming protection fibers to a shared protection fiber, said shared protection fiber providing a plurality of channels in excess of the number of channels of one or more of the working fibers. The Elahmadi 1 reference does not describe the working fibers, protection fibers or shared protection fibers having a plurality of channels. As stated in the Office Action on page 2, third paragraph, the Elahmadi 1 reference "does not teach specifics about how the channels are transmitted on each ring. . .". The Elahmadi 2 reference teaches away from the present invention as it explicitly states at column 6, lines 28 and 29 that, "Rings 102 and 104 cannot use their protect channels at the same time." The Elahmadi reference only describes switching from a single working fiber to the protect channel at one time and teaches away from the present invention for concurrently coupling channels from different incoming protection fibers to a shared protection fiber. The present invention has a distinct advantage of being able to concurrently switch channels from both rings onto the shared protection fiber.

Independent Claim 16 and dependent claim 17

Independent Claim 16 requires a first fiber ring including at least a first node and a second node, wherein the first fiber ring includes a first working fiber, wherein the first working fiber carries a plurality of channels; a second fiber ring including at least the first node

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and the second node, wherein the second fiber ring includes a second working fiber, wherein the second working fiber carries a plurality of channels; a shared protection fiber coupled between the first node and the second node, said shared protection fiber providing a plurality of channels in excess of the number of channels of one or more of the working fibers; and wherein any channel from the first working fiber from the first fiber ring and any channel from the second working fiber from the second fiber ring can be currently switched to respective channels of the shared protection fiber.

In contrast, the Elahmadi 1 reference and the Elahmadi 2 fail to disclose or suggest the requirements of claim 16, *inter alia*, of any channel from the first working fiber from the first fiber ring and any channel from the second working fiber from the second fiber ring can be currently switched to respective channels of the shared protection fiber. The Elahmadi 1 reference does not describe the working fibers, protection fibers or shared protection fibers having a plurality of channels. As stated in the Office Action on page 2, third paragraph, the Elahmadi 1 reference "does not teach specifics about how the channels are transmitted on each ring. . .". The Elahmadi 2 reference teaches away from the present invention as it explicitly states at column 6, lines 28 and 29 that, "Rings 102 and 104 cannot use their protect channels at the same time." The Elahmadi reference only describes switching from a single working fiber to the protect channel at one time and teaches away from the present invention for concurrently switching communication traffic on rings associated with different working fibers to respective channels of said shared protection fiber. The present invention has a distinct advantage of being able to concurrently switch channels from both rings onto the shared protection fiber.

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CONCLUSION

For the above reasons, the foregoing amendment places the Application in condition for allowance. Therefore, it is respectfully requested that the rejection of the claims be withdrawn and full allowance granted. Should the Examiner have any further comments or suggestions, please contact Jessica Smith at (972) 477-9109.

Respectfully submitted,

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REPLACEMENT SHEET

2/10

FIG. 2a
 (PRIOR ART)

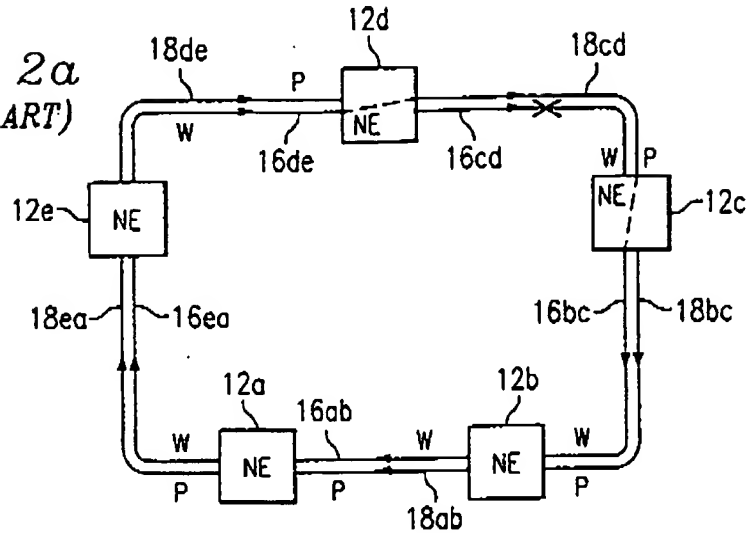


FIG. 2b
 (PRIOR ART)

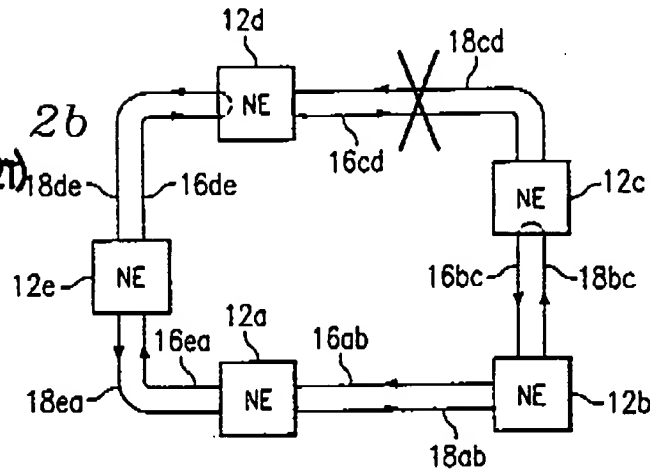


FIG. 3
 (PRIOR ART)

